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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/559,748

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Sung-Hyen Ryu

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EXAMINER

AMADIZ, RODNEY

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,748	Applicant(s) RYU, SUNG-HYEN	
	Examiner RODNEY AMADIZ	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Nobile et al. (U.S. Patent 5,057,827—hereinafter “Nobile”).

As to **Claim 1**, Nobile teaches a rotary electronic display board apparatus (***Figs. 1 and 8***), comprising: a drive motor (***16***) for rotating a rotary shaft (***14***) at a predetermined speed; a revolution solid (***12, 18***) connected to the rotary shaft (***14***), which rotates with a predetermined turning radius; an LED array (***20 & Col. 3, lines 15-18***) arranged on the revolution solid; an origin pulse generator (***26, 28 & Col. 3, lines 24-37 and 38-64***) for generating an origin pulse whenever the revolution solid rotates once; a line pulse generator for calculating a rotation period of the revolution solid using the origin pulse, and generating a plurality of line pulses each having a period corresponding to a division result value which is acquired by dividing the rotation period of the revolution solid by the number of virtual areas separated along the turning radius of the revolution solid (***Col. 4, lines 8-30 and Col. 4, line 55--Col. 5, line 5 and Col. 5, line 29-37***); and a controller (***22***) for generating a control signal to selectively switch on

or off the LED array so that desired text and image data is displayed at each line pulse generation time (**Col. 3, lines 20-21 & Col. 4, lines 8-30 and 50-54**).

As to **Claim 2**, Nobile teaches an LED drive for selectively switching on or off LEDs upon receiving the control signal from the controller (**Col. 4, line 8—Col. 5, line 5**).

As to **Claim 3**, Nobile teaches that the LED array is composed of a plurality of multi-color LED lines which are spaced apart from each other at a predetermined angle (**See Fig. 1, note left and right LED lines 18 with 20 that are spaced apart by 180°**) on the basis of the rotary shaft (**Col. 9, lines 9-15**).

As to **Claim 4**, Nobile teaches that the LED lines are composed of red(R), green (G), and blue (B)--colored LED lines, respectively (**Col. 9, lines 9-15**).

As to **Claim 5**, Nobile teaches that each angle among the LED lines is set to a specific angle (Fig. 1, 180°) indicative of a multiple of a predetermined angle corresponding to the division result value which has been acquired by dividing the turning radius of the revolution solid by the number of virtual lines (**Col. 4, lines 8-30**).

As to **Claim 6**, Nobile teaches a memory (**Fig. 3, 42 & Fig. 4, 62**) for storing data of LEDs to be switched on or off on individual virtual lines so that the text and image data can be displayed (**Col. 5, line 63—Col. 6, line 4 & col. 5, line 6—Col. 7, line 26**).

As to **Claim 7**, Nobile teaches a brightness level controller for controlling a brightness level of individual LEDs contained in the LED array (**Fig. 1, 22 & Col. 4, line 8--Col. 7, line 26--note that on and off are two levels of brightness**).

As to **Claim 9**, Nobile teaches that the revolution solid is configured in the form of either one of a circle, curve, and a straight bar (**See Fig. 1, 12**).

As to **Claim 10**, Nobile teaches that the data is equal to specific data generated by controlling a brightness level of the LEDs (**Fig. 1, 22 & Col. 4, line 8--Col. 7, line 26--note that on and off are specific data indicating two levels of brightness**).

3. Claims 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Berlin, Jr. (U.S. Patent 4,160,973—hereinafter “Berlin”).

As to **Claim 11**, Berlin teaches a method for driving a rotary electronic display board, comprising the steps of: a) generating an origin pulse whenever a revolution solid rotates once (**Col. 6, lines 41-49**); b) counting a rotation period of the revolution solid using the origin pulse (**Col. 6, line 31—Col. 7, line 42**); c) generating a plurality of line pulses each having a period corresponding to a division result value which is acquired by dividing the rotation period of the revolution solid by the number of virtual lines separated along a turning radius of the revolution solid while the revolution solid rotates once (**Col. 6, line 31—Col. 7, line 42—note that line pulses are the same as sector pulses**); and d) selectively switching on or off a plurality of LEDs at each line pulse generation time, and displaying text and image data (**Col. 2, lines 39-48, Col. 3, lines 9-29 and Abstract**).

As to **Claim 12**, Berlin teaches counting a difference between a current origin pulse entry time and a previous origin pulse entry time so that the rotation period of the

revolution solid can be recognized (*Col. 3, lines 65-67 and Col. 6, line 31—Col. 7, line 42*).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nobile.

As to **Claim 8**, Nobile fails to teach that the controller **(22)** further includes: a DMAC (Direct Memory Access Controller) for reading data of LEDs to be selectively switched on or off on the virtual lines from a memory, and transmitting the read data to an LED drive. Examiner takes Official Notice that the use of DMAC's is well known in the display art. At the time the invention was made, it would have been obvious to person of ordinary skill in the art to incorporate the use of a DMAC in the rotary electronic display board taught by Nobile so that it may access the system memory for reading and/or writing independently of the controller, thereby freeing the controller to accomplish other tasks by eliminating heavy overhead.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RODNEY AMADIZ whose telephone number is (571)272-7762. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

/R. A./
Examiner, Art Unit 2629
3/24/08